REVISED 5-7-87

FAILURE WIDE AND CAUSE ON END ITEM ONE SO of select wrist video (wrist trensh "On", no effect. Norst Case: Loss of mission critical video. Norst Case: Loss of mission critical video. The W7 RVS/RMS cable is a 20-inch long assembly, 35-wire assembly. The video and wires are shielded £27 Infants tristed-poir wires. The W7 cable power and commands from the RVS in the RVS wrist or show comera stack and returns video signal to the RVS. The cable daying is taken from the successfully flown Apollo program. The design is cable-connector assembly in which the wire terminations are protected from excessive flowing at the longth of the communicators sneaponalized in a potted-taper profile. This technique has been provided as a protect the assembly from dirt and entrapped moisture which could cause problet in space. The cable and its components meet the applicable requirements of RASA, Hilitary and is perfectly and Ocumentality extraction. Naterials Terminal Solderability Environmental Qualification Traceability and Ocumentation	FMEA NO. W 7.3.2 CRITICALITY 2/2		SHUTTLE CCTY CRITICAL ITEMS LUST	ONE NO. 2293290-501,502 ISSUED 10-14-86 SHEET 1 0- 5	
remain "ON", no effect. Morst Case: Loss of mission critical video. The M7 RVS/RMS cable is a 20-inch long assembly, 35-wire assembly. The video and swires are shielded 224 Twinax twisted-pair wires. The M7 cable provides power and commands from the RVS to the RMS wrist or elbow comera stack and returns video signal to the RVS. The cable design is taken from the successfully flown Apollo program. The design is cable-connector assembly in which the wire terminations are protected from excessive flexture at the joint between the wire and the connector terminal. The load concentration is moved away from the conductor connection and distributed axially all the length of the conductors encapsulated in a potted-taper profile. This technique also protects the assembly from dirt and entrapped moisture which could cause probled in space. The cable and its components meet the applicable requirements of NASA, Military and its pace and Construction Naterials The M7 RVS/RMS cable is a 20-inch long assembly, 35-wire assembly. The video and its terminates the M7 RVS/RMS cable is a 37-pin connector (P1, KJGSE14M35SM16). The video and its eminate wire and the M7 RVS/RMS cable is a 77-pin connector (P1, KJGSE14M35SM16). The video and its eminate wire and the M7 RVS/RMS cable is a 77-pin connector (P1, KJGSE14M35SM16). The video and its eminate wire and its eminate	FATLURE MODE AND FATLURE EFFECT		RATIONALE FOR ACCEPTANCE		
	ic an)	remain "ON", no effect. Norst Case: Loss of mission	The M7 RVS/RMS cable is a 20-inch long assembly, 35-wir terminated on each end with a 37-pin connector (P1, KJG wires are shielded #24 Twinax twisted-pair wires. The commands from the RVS to the RMS wrist or elbow camera to the RVS. The cable design is taken from the successfully flown A cable-connector assembly in which the wire terminations flexture at the joint between the wire and the connector concentration is noved away from the conductor connecti the length of the conductors encapsulated in a potted-talso protects the assembly from dirt and entrapped mois in space. The cable and its components meet the applicable requirements include: • General/Mechanical/Electrical Features • Design and Construction • Naterials • Terminal Solderability • Environmental • Qualification • Marking and Serialization	SE14N35SN16]. The video and sync N7 cable provides power and stack and returns video signals pollo program. The design is a are protected from excessive or terminal. The load on and distributed axially along aper profile. This technique sture which could cause problems	

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FRIENDE MIDE AND CAUSE OSS of select wrist video (wrist Upen/Short to GMD April 1985 Control 1985 Contro				HE413CD 0-7-07
ON END ITEM ON END ITEM ON END ITEM Wrist carera stack will remain "Win, no effect. Worst Case: Loss of mission critical video. ACCEPTANCE TEST The coble acceptance test consists of an elimenter check to essure that each wire connection is present and intact. Results are recorded on data sheets. OPERATIONAL TEST The following tests verify that CCTV components are operable and that the commands from the PMS (AZAI) panel switch, through the RCU, through the sync lines to the Camera/PTU, to the Camera/PTU command decoder are proper. The tests also verify the camera's ability to produce due, the VSV; a brilly to route video and the monitor's ability to display video. A similar test verifies the MCM command path. Pre-taunch on Orbiter Test/In-Flight Test 1. Power CCTV System. 2. Select a monitor via the PHS panel, as destination and the camera under test as source. 3. Send "Comera Power On" containd from PHS panel. 4. Select "External Sync" on monitor. 5. Observe video displayed on monitor. If video on monitor is synchronized (i.e., stable raster), then this indicates that the camera is receiving composite sync from the RCU acter also producing synchronized video. 6. Send Pan, Tilt, Focus, Zoum, ALC, and Gamna commands and visually (either via the monitor or the Camera Power Of" command via PHS panel. 6. Observe video displayed on monitor. 7. Select Downlink as destination and camera under test as source. 8. Observe video command via PHS panel. 9. Send "Camera Power Of" command via PHS panel. 10. Repeat Steps Jarough 9 sexpet issue commands via the MCM command path. Dris		, 	SHUTTLE CCTV CRITICAL ITEMS LIST	1\$\$UED
remain "ON", so effect. Desired Short to GND Marst Case: Loss of aission critical viden. ACCEPTANCE TEST The coble acceptance test consists of an eliminate check to assure that each wire connection is present and intact. Results are recorded on data sheets. OPERATIONAL TEST The following tests verify that CCTV components are operable and that the commands from the PMS (A7AI) panel switch, through the RDU, through the sync lines to the Camera/PTU, to the Camera/PTU command decoder are proper. The tests also verify the camera's ability to preduce video, the VSU's ability to route video and the manitor's ability to display video. A similar test verifies the MRM command path.			RATIONALE FOR ACCEPTANC	XE
	pss of select wrist video (wrist Wrist camera stack will remain "ON", so effect. pen/Short to GND Worst Case: Loss of mission		Qualified by 1.) similarity to previous successful space qualification tests of CCTV LRUs. ACCEPTANCE TEST The cable acceptance test consists of an observe records operational tests and intact. Results are records operational test. OPERATIONAL TEST The following tests verify that CCTV components are of the PMS (A7AI) panel switch, through the RCU, through to the Camera/PTU command decoder are proper. The test ability to produce video, the VSU's ability to route a display video. A similar test verifies the MCM command Pre-taunch on Orbiter Test/In-Flight Test 1. Power CCTY System. 2. Select a monitor via the PMS panel, as destination source. 3. Send "Camera Power On" command from PMS panel. 4. Select "External Sync" on monitor. 5. Observe video displayed on monitor. If video on stable raster), then this indicates that the camera is producing sync. Send Pan, filt, Focus, Zoom, ALC, and Gamna comman monitor or direct observation) verify proper oper 7. Select Downlink as destination and camera under it 8. Observe video routed to downlink. 9. Send "Camera Power Off" command via PMS panel. 10. Repeat Steps 3 through 9 except issue commands via PMS panel.	the to assure that each wire ed on data sheets. Derable and that the commands from the sync lines to the Camera/PTU, its also verify the camera's idea and the monitor's ability to ad path. On and the camera under test as monitor is synchronized {i.e., are is receiving composite sync uchronized video. Indicated video. Indicated wideo. Indicated wideo. Indicated wideo. Indicated wideo. Indicated wideo.

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FMEA NO. N 7,3.2 CRITICALITY 2/2		SHUTTLE CCTV CRITICAL ITEMS LIST	DNG NO. 2291290-501,502 15SLIED 10-14-86 SHEET 3 0F 5
FATITURE MODE AND CAUSE	FAICURE EFFECT ON END LIEN	RATIONALE FOR ACCEPTANCE	
oss of select wrist video (wrist VC ON) pen/Short to GND	Wrist camera stack will remain "OH", no effect. Worst Case: Loss of mission critical video.		
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FMEA NO. W 7.3.2 CARTICALITY 2/2 FAILURE HODE AND FAILURE EFFECT CAUSE ON END ITEM		SHUTTLE CCTV CRITICAL LIENS LIST	ONET CABLE PMG NO. 2293290-501,502 1\$\$\text{15}\text{10} = \text{10} - \text{14} - \text{96} \text{5}
		RATIONALE FOR ACCEPTANCE	
Loss of select wrist video (wrist TVC DN) Open/Short to GND	Wrist camera stack will remain "ON", no effect. Worst Case: Loss of mission critical video.	FAILURE MISTORY There have been no reported failures during RCA test!	ng, pre-flight or flight.

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FMEA NO. W 7.3.2 CRITICALITY 2/2		SHUTTLE CCTV CRITICAL LIEMS LIST	UNIT Cable DWG ND. 2293291-501,502 15SUED 10-14-86 SHEET 5 OF 5	
FAIL OHE MODE AND CAUSE	FAILURE EFFECT ON END ITEM	RATIONALE FOR ACCEPTANCE		
.oss of select wrist video (wrist IVC ON) Then/Short to GMD	ON END ITEM Wrist camera stack will remain "ON", no effect. Worst Case: Loss of mission critical video.	OPERATIONAL EFFECTS Loss of video. Possible loss of major mission objective required cameras. CREM ACTIONS If possible, continue RMS operations using alternated to use possible alternates MISSION CONSTRAINT Where possible procedures should be designed so the	te visual cues. to CCTV.	